APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,950	07/03/2003	Alexis Tzannes	5550-31	5413

62574   7590   06/23/2010
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EXAMINER
ROSARIO, DENNIS

ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
06/23/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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	Application No.	Applicant(s)
Office Action Summary	10/611,950	TZANNES ET AL.
	Examiner	Art Unit	
	DENNIS ROSARIO	2624	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>08 March 2010</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-91</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-91</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>03 July 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Applicant's request for reconsideration of the finality of the rejection of the last
Office action is persuasive and, therefore, the finality of that action is withdrawn. Claims
1-91 are pending.

Response to Arguments

2.   Applicant's arguments, see pre-appeal brief request for review, page 1, 2nd
paragraph, 1st sentence, filed 3/8/10, with respect to the rejection(s) of claim(s) rejected
under 103(a) have been fully considered and are persuasive. Therefore, the rejection
has been withdrawn. However, upon further consideration, a new ground(s) of rejection
is made in view of Hou (US Patent 5,859,788) and Daugman (Complete Discrete 2-D
Gabor Transforms by Neural Networks for Image Analysis and Compression).

Claim Rejections - 35 USC § 101

3.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

4.   Claims 1-18 and 73-91 are rejected under 35 U.S.C. 101 because the claimed
invention is directed to non-statutory subject matter.

Claims 1-18 are systems claims that do not clearly contain as hardware. The
claims contains modules that nave been broadly interpreted to be software that is non-
statutory.

Claims 73-91 claims a computer readable medium that the specification does not
clearly define. Thus, under the broadest reasonable interpretation the CRM is a signal

that is nonstatutory. The examiner suggests using "non-transitory computer readable

medium" instead of "computer readable medium."

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claims 1-6,8,12-14,17-24,26,30-32,35-41,42,44,48-50,53-60,62,66-68,71-

78,80,84-86 and 89-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lubin et al. (US Patent 6,075,884) in view of Hou (US Patent 5,859,788) further in view

of Daugman (Complete Discrete 2-D Gabor Transforms by Neural Networks for Image

Analysis and Compression) or Lubin et al. (US Patent 6,075,884) in view of Daugman

(Complete Discrete 2-D Gabor Transforms by Neural Networks for Image Analysis and

Compression.)

        Regarding claim 19, Lubin teaches an image compression method

comprising:

        a)   receiving, by a compression module (fig. 1:110), a first image (fig. 7:

ORIGINAL VIDEO), that has been decomposed into N subbands using a 2-dimensional

wavelet transform (corresponding to "transform coeffi-cients" in col. 7, lines 4-7 and in

col. 9, lines 39-43 with respect to fig. 9.), in a sequence of images and

        b)   compressing (fig. 7:ENCODED BITSTREAM) the image at least based on

one or more parameters (fig. 7:ENCODER PARAMETERS); and

c)   iteratively adapting ("iterative…adaptation" in col. 9, lines 1-3 via figures 7 and 8) the one or more parameters ("parameters" in col. 9, lines 1-3) used on the first image (fig. 7:ORIGINAL VIDEO) for compression (via figs. 4-6) of a next image (fig. 4:ORIGINAL VIDEO), wherein the one or more parameters include at least one truncation parameter (given that the parameters are used to "reduce…error" in col. 9, lines 1-3).

Lubin does not teach the 2-dimensional wavelet transform.

Hou teaches using a 2-dimensional wavelet transform in the form of the "Gabor wavelet" in col. 9, lines 31-33.

Lubin contained a device which differed the claimed process by the substitution of the 2D wavelet transform. Hou teaches the substituted step of using the Gabor wavelet and their functions were known in the art to compress images. Lubin's step of using transform coefficients could have been substituted with Hou's Gabor wavelet and the results would have been predictable and resulted in compressing images in a "very compact" (abstract of Daugman) manner.

Therefore, the claimed subject matter would have been obvious to a person having ordinary skill in the art at the time the invention was made.

; or

Lubin does not teach the wavelet limitation.

Daugman teaches the claimed 2-dimensional wavelet transform as "2D Gabor wavelet template" in the abstract, 10th line from the bottom.

Lubin contained a device which differed the claimed process by the substitution of "transform coeffi-cients" in col. 7, lines 4-7 and in col. 9, lines 39-43 with respect to fig. 9. Daugman teaches the substituted step of using the 2D Gabor wavelet template and their functions were known in the art to generate a "very compact" in the abstract of Daugman image. Lubin's step of transform coefficients could have been substituted with Daugman's 2D Gabor wavelet template that produces coefficients and the results would have been predictable and resulted in Lubin having a transform that produces a very compact image via Daugman's wavelet template that is desirable in image compression of Lubin.

Therefore, the claimed subject matter would have been obvious to a person having ordinary skill in the art at the time the invention was made.

Claims 20 and 21 are rejected the same as claim 19c). Thus, argument similar to that presented above for claim 19c) is equally applicable to claims 20 and 21.

Regarding claim 22, Lubin teaches the method of claim 21, wherein the metric is at least based on one of image file size and image quality (since figure 4 is called QME which stands for quality-metric-based encoding.).

Regarding claim 23, Lubin teaches the method of claim 22, wherein the metric governing image quality is based on one or more of:

a)   peak signal to noise ratio,

b)   mean squared error,

c)   human visual system models and

d)   operator inspection (or "human viewer" in col. 7, line 34).

A rejection of claim 24 is moot based on the "one of" limitation in claim 22.

Regarding claim 26 Lubin teaches the method of claim 21, wherein the metric is based on a difference (or "differences" in col. 5, line 20) between a target image quality ("predicted ratings" in col. 5, line 20) and an achieved image quality ("ratings observed" in col. 5, line 20 where said ratings includes "quality levels" in col. 5, line 24) .

Regarding claim 30, Lubin teaches the method of claim 19, wherein the first image and the next image are one or more of:

a)   a sequence of images (or ORIGINAL VIDEO as shown in fig. 4),

b)   time-series data, and

c)   3-dimensional data sets.

Regarding claim 31, Lubin teaches the method of claim 19, further comprising: a) iteratively ("iterations" in col. 7, line 44) controlling the one or more parameters.

Claim 32 is rejected the same as claim 31. Thus, argument similar to that presented above for claim 31 is equally applicable to claim 32.

Regarding claim 35, Lubin teaches the method of claim 19, further comprising:

a)   selecting a quantization ("selection of a quantization" in col. 9, line 52).

Claims 1-6,8,12-14,17,18 are rejected the same as claims 19-24,26,30-32 and 35,19. Thus, argument similar to that presented above for claims 19-24,26,30-32 and 35,19 of a method is equally applicable to claims 1-6,8,12-14,17,18 of a system.

Claims 36-42,44,48-50,53,54 are rejected the same as claims 19,19-24,26,30-32 and 35,19. Thus, argument similar to that presented above for claims 19,19-24,26,30-32 and 35,19 of a system is equally applicable to claims 36-42,44,48-50,53,54 of a system.

Claims 55-60,62,66-68,71-72 are rejected the same as claims 19-24,26,30-32 and 35,19. Thus, argument similar to that presented above for claims 19-24,26,30-32 and 35,19 of a system is equally applicable to claims 55-60,62,66-68,71-72 of a protocol.

Claims 73-78,80,84-86,89,90,91 are rejected the same as claims 19-24,26,30-32 and 35,19,19. Thus, argument similar to that presented above for claims 19-24,26,30-32 and 35,19,19 of a system is equally applicable to claims 73-78,80,84-86,89,90,91 of a media.

7.   Claims 1,7,9-11,15,16,18,19,21,25,27-29,33,34,36,37,39,43,45-47, 51, 52, 54, 55, 57,61,63-65,69,70,72,73,75,79,81-83,87,88,90 and 91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukherjee (US Patent 7,003,167 B2) in view of Hou (US Patent 5,859,788) further in view of Daugman (Complete Discrete 2-D Gabor Transforms by Neural Networks for Image Analysis and Compression) or Mukherjee (US Patent 7,003,167 B2) in view of Daugman (Complete Discrete 2-D Gabor Transforms by Neural Networks for Image Analysis and Compression.)

Regarding claim 19, Mukherjee teaches an image compression method comprising:

a)   receiving, by a compression module (fig. 1:11), a first image (fig. 1:98), that has been decomposed into N subbands using (not taught) a 2-dimensional wavelet

transform ("wavelet-based JPEG 2000" in col. 1, lines 45-49), in a sequence of images

("series of blocks" in col. 4, lines 25-27) and

b)   compressing the image (fig. 1:11) at least based on one or more parameters (fig.

1:13:RAW or BTC-VQ or n-COLOR); and

c)   iteratively adapting (via "adaptive image compression" in col. 3, line 50) the one

or more parameters (fig. 1:13:RAW or BTC-VQ or n-COLOR) used on the first image

(fig. 1:98) for compression of a next image (given that the adaptive image compression

operates using said RAW or BTC-VQ or n-COLOR on a "block by block" in col. 3, lines

50-53 basis, the adaptive compression finishes processing of a current block for

processing another block that is waiting to be processed), wherein the one or more

parameters (said RAW or BTC-VQ or n-COLOR) include at least one truncation

parameter (said RAW includes " 'truncated raw' " in col. 3, lines 25-29).

    Mukherjee does not teach using the claimed 2-dimensional wavelet transform.

    Hou teaches a "Gabor wavelet" in col. 9, lines 31-33.

    Mukherjee contained a device which differed the claimed process by the

substitution of using the 2-dimensional wavelet transform. Hou teaches the substituted

step using the Gabor wavelet and their functions were known in the art to compress

images. Mukherjee's step of using a transform other than the wavelet could have been

substituted with Hou's step of using the Gabor wavelet and the results would have been

predictable and resulted in compressing images in a "very compact" (abstract of

Daugman) manner.

Therefore, the claimed subject matter would have been obvious to a person

having ordinary skill in the art at the time the invention was made; or

Mukherjee does not use the claimed wavelets.

Daugman teaches the claimed 2-dimensional wavelet transform as "2D Gabor

wavelet template" in the abstract, 10th line from the bottom.

Mukherjee contained a device which differed the claimed process by the

substitution of the 2-dimensional wavelet transform. Dauman teaches the substituted

step of using the 2D Gabor wavelet template and their functions were known in the art

to be used in the compression environment. Mukherjee's step of using a preferred

transform over the wavelet could have been substituted with Daugman's 2D Gabor

wavelet and the results would have been predictable and resulted in using the 2D

Gabor wavelet template in Mukherjee's encoder with a "very compact" in the abstract of

Daugman image compression which is desirable for Mukherjee's encoder.

Therefore, the claimed subject matter would have been obvious to a person

having ordinary skill in the art at the time the invention was made

Regarding claim 21, Mukherjee teaches the method of claim 19, wherein the

compression parameter module adapts the one or more parameters based on a metric

(or "in-progress measure" in col. 2, line 56).

Regarding claim 25, Mukherjee teaches the method of claim 21, wherein the

metric is based on a difference between a target image file size and an achieved image

file size ("difference between the determined com-pressed block size and the target

block size" in col. 5, lines 64,65.

Regarding claim 27, Mukherjee teaches the method of claim 19, wherein the one or more parameters includes one or more:

a)   quantization parameters (or "BTC-VQ" in col. 4, line 40 that is a function of truncation and quantization).

Claims 28,29,33 and 34 are rejected the same as claim 27. Thus, argument similar to that presented above for claim 27 is equally applicable to claims 28,29,33 and 34.

Claim 36 is rejected the same as claim 19. Thus, argument similar to that presented above for claim 19 is equally applicable to claim 36.

Claims 1,7,9-11,15,16,18 are rejected the same as claims 19,25,27-29,33,34,19. Thus, argument similar to that presented above for claims 19,25,27-29,33,34,19 of a system is equally applicable to claims 1,7,9-11,15,16,18 of a method.

Claims 37,39,43,45-47,51,52,54 are rejected the same as claims 19,25,27-29,33,34,19. Thus, argument similar to that presented above for claims 19,25,27-29,33,34,19 of a system is equally applicable to claims 37,39,43,45-47,51,52,54 of a system.

Claims 55,57,61,63-65,69,70,72 are rejected the same as claims 19,25,27-29,33,34,19. Thus, argument similar to that presented above for claims 19,25,27-29,33,34,19 of a system is equally applicable to claims 55,57,61,63-65,69,70,72 of a protocol.

Claims 73,75,79,81-83,87,88,90,91 are rejected the same as claims 19,25,27-29,33,34,19. Thus, argument similar to that presented above for claims 19,25,27-

29,33,34,19 of a system is equally applicable to claims 73,75,79,81-83,87,88,90,91 of a media.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Persiantev et al. (US Patent Application Publication No.: US 2002/0061066 A1) is pertinent as teaching an adaptive iterative cycle also known as a feedback loop in the context of wavelets and truncation as mentioned in [01160].

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS ROSARIO whose telephone number is (571)272-7397. The examiner can normally be reached on 9-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571)272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/   Dennis Rosario
Supervisory Patent Examiner, Art Unit 2624   Examiner
                                                        Art Unit 2624